

Notice of Allowability

Application No.

10/774,154

Applicant(s)

KASPAR ET AL.

Examiner

Art Unit

Henry S. Hu

1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amendment of March 4, 2005.
2. ☒ The allowed claim(s) is/are 1-10.
3. ☒ The drawings filed on 06 February 2004 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with **Brian E. Szymanski (tel. 651 737-9138) on April 5, 2005** to add the missing **Brief Description of the Drawings** in the specification as following:

Specification

On page 6 at line 11 please insert the following paragraph of:

Brief description of the drawings

Figure 1 is a graphical representation of phase angle versus angular frequency of a fluorothermoplast of the present invention.

Figure 2 is a graphical representation of elongation rates versus time for several polymers.

DETAILED ACTION

2. Applicants' amendment filed on **March 4, 2005** was received. Claims 1-7 were amended. To be more specific, parent **Claim 1** was rewritten from original parent Claim 1 to become a composition claim comprising such a fluoropolymer as well as to fix the claim objection on the issue as "it may be also optional for said fluoropolymer to have long chain branches". Claims 2-6 were corrected accordingly, while other parent Claim 7 was only amended to clarify the language. The examiner thereby withdraws claim objection in the previous Office Action dated January 11, 2005. **The Examiner has also accepted the drawing with two figures (Fig. 1 and Fig. 2) filed on 2-6-2004.** With the above examiner's amendment the missing **Brief Description of the Drawings** is added.

Per request of the examiner regarding **the priority date of 3-25-2003, the Applicants have sent in a copy of EP 03075848.6 for scanning into the IFW file.** Claims 1-10 are pending now. An action follows.

3. The 103(a) claim rejections under the second non-final Office Action filed on January 11, 2005 are now removed for the reasons given in paragraphs 4-11 thereafter.

Allowable Subject Matter

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4. Claims 1-10 are allowed.

5. The following is an examiner's statement of reasons for allowance: The above claims 1-10 are allowed over the closest references:

6. *The limitation of amended parent Claim 1 of present invention relates to **a composition** comprising a fluoropolymer that is **melt-processible and thermoplastic** and that has a melting point between 100 °C and 320 °C, said fluoropolymer being derived from (a) one or more **gaseous fluorinated monomers**; (b) one or more modifiers selected from (i) **olefins having a bromine or iodine atom** bonded to a carbon of the double bond of the olefin, (ii) **olefins having a formula (I) of $X^a_2C=CX^a-R_f-Br$** , wherein X^a is H, F, Br, Cl, or I; R_f is perfluoroalkylene, perfluoroalkoxyalkylene or perfluoropolyether group and (iii) mixtures thereof; and (c) **optionally** one or more comonomers selected from non-gaseous fluorinated monomers and non-fluorinated monomers, said fluoropolymer having long chain branches.*

Other parent Claim 7 relates to the process of making fluoropolymers of Claim 1. See other limitations of dependent Claims 2-6 and 8-10.

7. In view of the Applicants' amendment, parent Claim 1 of present invention specifically relates to a composition comprising a **melt-processible and thermoplastic** fluoropolymer having the repeating units of (a) and (b) as specified. In a close examination, the **(b) units must be from** (i) **olefins having a bromine or iodine atom** bonded to a carbon of the double bond of the olefin; (ii) **olefins having a formula (I) of $X^a_2C=CX^a-R_f-Br$** , wherein X^a is H, F, Br, Cl, or

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I; or (iii) a mixture of (i) and (ii). The other parent **Claim 7** relates to the process of making such a fluoropolymer of Claim 1.

8. As pointed in the second non-final office action on paragraph #5, it is clear that the Bekiarian reference is silent about using either an olefin with a bromine or iodine atom bonded to the carbon atom of the double bond of the olefin or an olefin corresponding to the formula (I) of Claims 1 and 7. **Worm** has taught that in the course of making curable composition, the **bromine and iodine atoms may be incorporated in the “fluoroplastic” by using monomers such as 4-bromo-3,3,4,4-tetrafluoro-1-butene, bromotrifluoroethylene (BTFE) and the like** (column 2, line 27-33). However, the Worm reference with a filing date of January 13, 2003 is only **a 102(e) dated prior art** and **with the same assignee (3M)** as pointed out by the Applicants on page 6 of Remarks. Based on this key point, the examiner thereby withdraws the 103 rejections over Bekiarian et al. (US 4,612,357) or Bekiarian et al. (EP 0,208,305 A2), each individually in view of Worm et al. (US 6,734,254 B1).

9. Additionally, the present invention has shown in examples along with some comparative examples for making such a composition comprising such a melt-processible and thermoplastic fluoropolymer having the repeating units of (a) and (b) as specified (see pages 15-23 for **examples 1-8** along with its **Tables 1-3**). Therefore, all the above-mentioned references, in combination or alone, does not teach or fairly suggest the limitations of present invention.

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10. After further examination and search, the examiner found the following prior art did not teach the claimed limitation: **US Patent No. 5,252,401 to Kitto et al.** discloses the preparation of a curable fluoroelastomer comprising VDF, HFP, PAVE, and **up to 3 mol% of a brominated monomer such as bromotrifluoroethylene, bromotetrafluorobutene** (abstract, line 1-25; column 1, line 57 – column 2, line 9). However, the copolymer is not **melt-processible and thermoplastic** since the fluorinated copolymers are only **elastomers** (title; abstract, line 1-3). Therefore, Kitto fails to teach or fairly suggest the limitation of present invention.

11. The two key issues, regarding (A): a melt-processible and thermoplastic fluoropolymer having the repeating units of (a) and (b) as specified; and (B): the **(b) units must be from (i) olefins having a bromine or iodine atom** bonded to a carbon of the double bond of the olefin; (ii) **olefins having a formula (I) of $X^a_2C=CX^a-R_f-Br$** , wherein X^a is H, F, Br, Cl, or I; or (iii) a mixture of (i) and (ii), cannot be overcome by any or the combination of the above references, therefore, the present invention is novel.

12. As of the date of this office action, the examiner has not located or identified any reference that can be used singularly or in combination with another reference including the above references to render the present invention anticipated or obvious to one of the ordinary skill in the art. Therefore, the two independent and parent **Claims 1 and 7** are allowed for the reason listed above. Since the prior art of record fails to teach the present invention, the remaining pending **Claims 2-6 and 8-10** are passed to issue.

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13. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Henry S. Hu whose telephone number is **(571) 272-1103**. The examiner can be reached on Monday through Friday from 9:00 AM –5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on (571) 272-1114. The fax number for the organization where this application or proceeding is assigned is (703) 872-9306 for all regular communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Henry S. Hu

Patent Examiner, Art Unit 1713, USPTO

April 5, 2005



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